

Highlights from



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2006 National WNV Conference

- San Francisco, CA – Feb. 23-24, 2006
- Hodge-podge overview
- Some of the 2006 power point presentations are accessible at:
- http://www.cdc.gov/ncidod/dvbid/westnile/conf/February_2006



2006 National WNV Conference

- Federal WNV funding ↓ 30% (\$10,000,000 drop nation-wide). ↓ \$ will affect all states.
- Many states reporting WNV “fatigue” &/or “burn-out” from citizens & government responders. WNV is becoming “old news.”
- ↓ fear/concern = ↑ complacency = ↓ infrastructure
- Attention, and funding, is shifting toward other things - Avian Flu.



2006 National WNV Conference

- WNV is endemic. It is not going away.
- 2005 - 3rd highest # WNV human cases.
- WNV activity will be unpredictable. Outbreaks / spikes will happen.
- CDC urges state & local programs to maintain infrastructure!!
- “WNV is not the first arbovirus to be introduced into the U.S., and it won’t be the last.” - Dr. Lyle Petersen, CDC



Global Perspective — R. Rosenberg

- 50+ pathogenic arboviruses around the world
- Rift Valley Fever
- Japanese encephalitis
- Yellow fever—epidemic Sub-Saharan Africa
- Chikungunya - ↑ incidence — Indian Ocean
- Usutu — reported in Europe, 2001+
- Nam Dinh — new arbovirus?? isolated from CSF from sick child in Hanoi
- Arboviruses & vectors are moving around.

“It’s out there.”



Other Arbovirus Threats

- Dengue: endemic in 100+ countries
- Est: 50 – 100 million cases/year
- 250,000+ = DHF, 24,000+ deaths/year
- 2005 = bad dengue year in Latin America
- 160,000_± cases in Brazil
- Est. 4,000_± cases along Mexico border
- 29 autochthonous cases in U.S. / TX
- 1st autochthonous DHF case reported
- *Aedes aegypti* - thriving in southern AZ

WNV: Clinical Studies

- J.Sejvar,CDC | K.Bloch, Vanderbilt Univ.
- ↑ range of syndromes associated w/ WNV
- Risk factors for severe disease: advanced age, diabetes, hypertension, male, homeless, alcohol abuse
- Encephalitis cases outcomes: in one study, only 20% of cases went home w/out assisted care.



WNV: Clinical Studies

- C. Glaser, et al. CA Dept. Health Services
- WNV fever = not benign infection
- Recovery times are lengthy
- F/U 150 WNF cases – median time to “normalcy” was 47- 60 days!
- Persistent Sx: fatigue, headache, muscle aches, clinical depression, ↓ cognitive abilities (word finding difficulties), slurred speech, etc.



F/U of hospitalized patients, TX

- K. Lillibridge, Univ. of Texas
- 172 hosp. WNV cases - TX
- @ 6 months – 62% still had symptoms
- Sequelae @ one year post onset:
- Personality chg (34%) – agitation, aggression
- Fatigue (31%)
- Depression (29%)
- Weakness (25%)
- Headache (7%)
- Other: paralysis, blurred vision, confusion, fever, difficulty concentrating, restless sleep, etc.



Acute Flaccid Paralysis Recovery

- Jun Li, Wayne State Univ.
- AFP: polio-like muscle weakness /paralysis in limbs due damage to motor neurons
- Initial severity of AFP sx was not a predictor of recovery / outcome
- Electrophysiological studies:
- ↓ surv. motor units = ↓ recovery of strength
- Best improvement w/in 1-3 months



WNV: Bird Ecology

- Wm. Reisen, Univ. of California
- Evidence of WNV infection among wild birds can reach significant levels.
- WNV outbreaks – when wild bird seropositivity reached 30%+, the outbreak would start to taper-off.
- This might explain the 2004 WNV outbreak in Maricopa County which peaked in June.



2005 California Experience

- 2005 -CA experienced its worst year yet
- 873 clinical WNV cases, 300+ neuroinv.
- 109,300+ dead bird reports! 3,000+ WNV
- 450+ equines, 1200+ mosq. pools, 790+ sentinel chickens
- WNV focus shifted northward
- Sacramento Co. – hardest hit county w/ 175 human cases



Vector Control, CA 2005

- Sacramento County - decided to go to aerial fogging in spite of controversy and protest
- WNV outbreak virtually stopped in spray zones!
- No new cases occurred w/in spray zones (taking into account two week incubation period)
- New cases continued to occur in no-spray zones
- Spray-zone has 2.5X population



Post Hurricane Vector Control

- Post hurricane mosquito control - SE
- Large scale aerial fogging done by Air Force and Private Company
- 6 million+ acres - Naled® 1 oz/acre
- Before and after landing counts showed an average decrease in mosquitoes = 92% (range = 70-100%)



WNV Poster Sessions



WNV: Clinical Studies

- J.K. Lim, et al. - study involved AZ & CO
- Chemokine Receptor CCR5 mediates resistance to WNV infection in mouse and man – associated w/ leukocyte recruitment to the infected brain (CD4+ & CD8+ T cells, macro's).
- CCR5 Δ 32 genotype, a defective CCR5 allele confers ↓ resistance to WNV infection shows ↑ resistance to HIV.
- CCR5-blocking agents under dvp for treatment of HIV/AIDS may make patients more susceptible to severe WNV infection.



Blood Screening: U.S. 2003-2005

- S.L.Stramer,et al. ARC & Blood Systems
- WNV blood screening started July 2003
- ~ 5 million blood donations / season
- WNV+ donors = 1,355 over three seasons
- 2,000+ blood components interdicted
- 2003: 755 | 2004: 254 | 2005: 346
- NAT screening compliments WNV surv.



Blood Screening: WNV RNA

Persistence

- M.P. Busch, et al. (BSRI) - 290+ WNV viremic donors enrolled for serial testing to see when (1) WNV RNA was no-longer detected by NAT, and (2) antibody response was detected.
- Time from index WNV+ donation for IgM Ab – 3.4 days, and for IgG Ab – 7.6 days
- Low levels of WNV RNA detected for 21 days post index donation (evidence of WNV viremia)



West Nile Virus Surveillance & Response Plan, Arizona - 2006



West Nile Virus Surveillance & Response Plan, Arizona - 2006

STAY-THE-COURSE!

Revised protocols were recently emailed to WNV surveillance partners. Protocols are also available in the Sapphire Room.



WNV Surveillance Plan 2006

- Human case F/U
- Mosquito pools
- Dead bird testing
- Equine case F/U
- Sentinel chickens
- Other animals
- April 1st, 2006



Human Case Surveillance

- WNV is reportable by MDs and Labs
- AZ State Lab - IgM ELISA: WNV & SLE
- Testing available @ State Lab – neuroinvasive, hosp. & out-pt. fever
- Accept commercial lab IgM+ results
- Blood Systems - blood donor screening is a good indicator of when transmission to humans is occurring.

Mosquito Pool Surveillance

- Same as before.
- High surveillance value.
- Testing performed by:
 - Arizona State Health Lab - PCR
 - Maricopa Co. Vector Control - R
 - Pima Co. Consumer Health - R
 - Pinal Co. Env. Health - R
 - Yuma Co. Pest Abate. Dist. - R
 - Yuma Co. Health Dept. - R
 - ADHS - VBZD - R



R = RAMP assay

Dead Bird Surveillance

- Testing performed by the UA-VDL
 - IHC, PCR & RAMP
- RAMP assay capability @ MCVC, Pima, Pinal, Yuma HD, Yuma PAD, ADHS-VBZD
- All bird species are accepted so long as they are “fresh.” But: doves & pigeons have low surveillance value.

Dead Bird Surveillance

- Value of dead bird surveillance in AZ has been questionable.
- BUT, dead bird submissions dropped in 2005
- The decrease was due, in part, to less reporting & submitting by citizens.



Dead Bird Surveillance

- Dead bird surveillance has ↑ potential for early WNV detection when there is ↑ reporting and testing.
- There is renewed public interest in “dead birds” due to media attention to Avian Flu.
- Local health officials are encouraged to:
- **Capitalize on ↑ bird reporting due to AI.**
- **Maintain dead bird surveillance infrastructure.**
- **Communicate protocol to staff taking calls.**



Equine Case Surveillance

- Same as before.
- Front-line surveillance by large animal DVMs - pull bloods from neuro horses
- Testing - UA-VDL: IgM ELISA, IHC, PCR



Sentinel Chicken Surveillance

- ↑ # flocks in southern AZ
- 20± flocks – 2006
- 6-10 birds/flock
- Bled every 2± weeks
- IFA – IgG testing:
 - AZ State Health Lab
 - UA -Vet. Diag. Lab



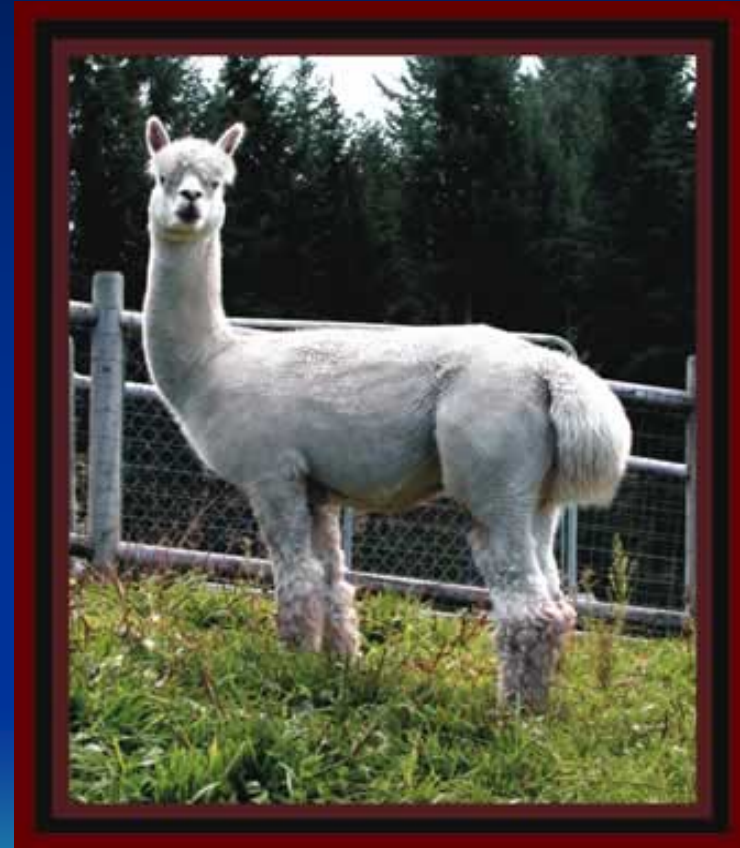
Sentinel Chicken Flocks

- NOTE: any unexplained morbidity & mortality in sentinel chickens should be immediately reported to the ADA Livestock & Poultry Hotline: **1-888-742-5334**
- The future arrival of AI to the U.S. → modification of chicken-stickin' activities for arbovirus surveillance purposes.



Other Animal Surveillance

- Continue as before
- Squirrels, cameliids, etc.
- UA-VDL: IHC, PCR



Vector Control

- Good surveillance is essential to a successful vector control program !
- At minimum -local programs should have a basic larviciding capability.**
- Record keeping of vector control measures is important!
- Mosquito fish (*Gambusia*) – should be used w/ caution and should be monitored. Keep records of fish distribution! Examples of sign-up forms for public for use of fish is available in Sapphire Room.

**Larviciding 101 DVD is available for start-up programs. Sign-up list is in the Sapphire Room.



Communication Plan

- Phone calls – to affected counties
- Email groups – updates (sign-up sheet)
- Weekly teleconferences (if needed)
- Health Alert Network (HAN)
- SIREN

Communication must be two-way!

Please inform us of your RAMP results and plans for media releases, etc.



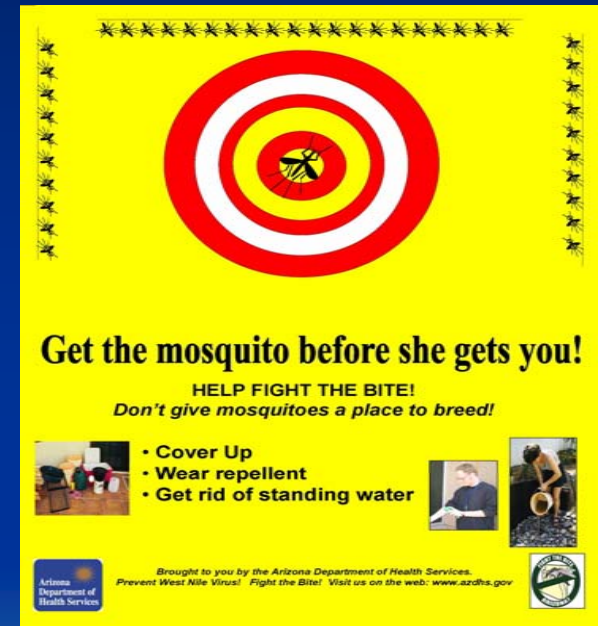
WNV Prevention Education

- WNV still poses a serious PH threat!
- Health officials will have to work even harder this year to convey this message as we have to overcome WNV “burn-out” & complacency.
- Outreach: websites, press releases, fliers & posters, bookmarks, kids activity sheets, public mtgs/events - displays/booths, radio, etc.



Next Door in the Sapphire Room

- Vector Control Industry – booths & reps w/ latest information on VC products
- WNV poster displays:
 - WNV Windshield Survey
 - WNV poster for public ed
 - WNV “bullseye”
- S.W.A.T. posters
- Prevention ed materials:
 - kids’ activity sheets, fliers, bookmarks, etc.





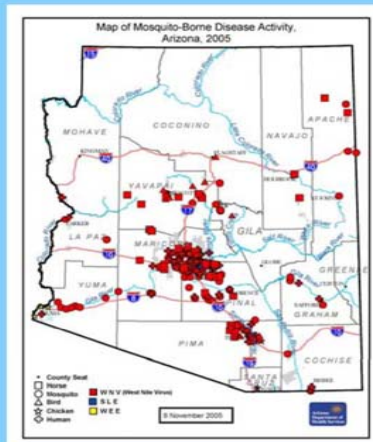
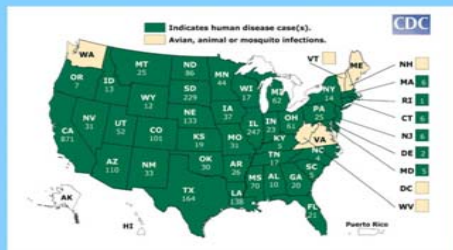
THE MOSQUITO: It's not just an annoying little bug anymore..



POTENTIALLY LIFE-CHANGING EXPERIENCE

People of any age can get sick with West Nile Virus. Some people can become very ill and need hospital care. It can even cause death. Severe West Nile illness can cause headache, high fever, stiff neck, mental confusion, muscle weakness, convulsions, coma, and paralysis. Milder symptoms are similar to those of the flu. In some cases, the illness can persist for weeks or even months. See your doctor if you develop any of these symptoms.

At this time, there is no specific treatment for West Nile virus infection and there is no vaccine for people. It's better to prevent it than to get it.



BREAK THE CYCLE



PREVENTION

Avoid them! Limit time outdoors from dusk to dawn.

Cover up! Wear long sleeve shirts, long pants and socks sprayed with repellent.

Protection! Spray insect repellent on exposed skin and clothing when you go outside. Follow the directions on the repellent container.

Dump it out! Get rid of standing water in and around your home.



BREEDING SOURCES

Reduce or eliminate standing water around your home, as mosquitoes breed in water. Here's how:

- Turn cans, containers, or empty ceramic pots upside down
- Remove all tires from your property
- Drill holes in the bottoms of containers kept outdoors
- Change water in bird baths, pet dishes and flower pots daily
- Clear vegetation and debris from ponds
- Clean and chlorinate swimming pools, saunas and hot tubs
- Turn over plastic wading pools, canoes, wheelbarrows, etc. when not in use
- Use landscaping to eliminate standing water that collects on your property
- Make sure gutters are cleaned and drained properly
- Drain water from pool covers
- Repair leaky pipes and outside faucets
- Drain evaporative coolers when not in use during the monsoon season



YOU HAVE THE POWER TO PREVENT WEST NILE VIRUS



YOU HAVE THE POWER...

S.W.A.T.

Spray Repellent • Wear Long Sleeves • Avoid Standing Water • Tell Your Community



Drawing by Christina Meati
Alcedo High School

TO ELIMINATE WEST NILE VIRUS

PROTECT YOURSELF FROM MOSQUITO BITES:

Avoid outdoor activity during peak mosquito times - dusk to dawn

Wear long, loose, light-colored clothing

Use insect repellent when outdoors after sunset



West Nile Virus Response Team

- Arizona Dept. Health
 - State Health Lab
 - Other Epi staff
 - Bioterrorism staff
 - Vector/Zoonotic staff
- County Health Depts
- Indian Health Service
- Indian Tribes
- CDC – Ft. Collins
- Yuma Co. Pest Abate.
- UA Vet. Diag. Lab
- Aquatic Consulting
- US Army – CHPPM
- Air Force
- Blood Systems
- Univ. of Arizona
- Chinle Veterinary Clinic

